

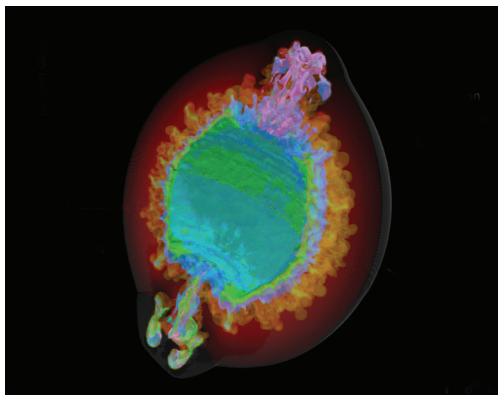


3D PRINTING: PRINT YOUR OWN VELA PULSAR

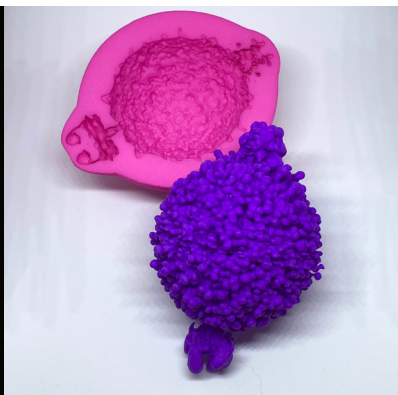
Vela Pulsar

The Vela Pulsar is the aftermath of a star that collapsed. The explosion sent a remarkable storm of particles and energy into space. NASA's Chandra X-ray Observatory and other telescopes have captured this storm. At the center is a pulsar, a rapidly spinning dense star that sends beams of light out into space like a cosmic lighthouse.

Creating Your Own Pulsar



INAF/SO/Orlando



3D print image credit NASA/CXC/SAO/K.Arcand

The Vela Pulsar is a rotating neutron star (pulsar) that was formed when a massive star collapsed about 1,000 light years from Earth. The resulting pulsar spans about 12 miles in diameter, and makes over 11 complete rotations every second, faster than a helicopter rotor.

The 3D print shows the jets that emanate from the central pulsar. The jets point in the same direction as the motion of the pulsar. This model also shows the “ejecta” or the material ejected about 5,000 years after the supernova occurred. Additionally, the blast wave is a separate 3D printable piece. It is an envelope of energy pushed outward from the energetic pulsar and its jets.

The jets cause protrusions in this otherwise spherical envelope at the poles.

Select the 3D printer of your choice to make your own Vela Pulsar. Download the 3d files. For our 3D-printed example shown here, the two different pieces (ejecta, blastwave) were printed separately. Two colors of PLA filament were used, one color for the ejecta (purple) and a second for the blastwave (pink). Support structures were not required.



3D files and instructions
are available at
chandra.si.edu/3dprint